TWO NEW COMBINATIONS IN BOLIVIAN *GENTIANELLA* (GENTIANACEAE)[1]

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ABSTRACT

Gentianella boliviana and *G. inaequicalyx* are recognized as species and the nomenclatural combinations are validated.

RESUMEN

Se reconocen como especies *Gentianella boliviana* y *G. inaequicalyx*, y se validan las combinaciones nomenclaturales.

Two new combinations are required for identifications and for use in the *Catalogue of the Vascular Plants of Bolivia*, in progress at the time of this writing, edited by Peter Møller Jørgensen.

GENTIANELLA BOLIVIANA

Gentiana boliviana Pax, *G. hieronymi* Gilg, *G. lobelioides* Gilg, and *G. peruviana* (Griseb.) Gilg, which had been recognized as four species by Gilg (1916), were treated by Ho and Liu (1993) as a single species, which they called *Gentianella peruviana* (Griseb.) Fabris. Nomenclaturally, this treatment is incorrect. The name *Gentianella peruviana* (Griseb.) Fabris was based on *Gentiana limoselloides* [var.] β *peruviana* Griseb. The name *Gentiana peruviana* (Griseb.) Griseb. was based on this varietal name as to the basionym but not as to the plants described. When it was published in 1879, it was an illegitimate homonym of *Gentiana peruviana* Lam. 1786, which is a taxonomic synonym of *Centaurium cachanlahuen* (Molina) B.L. Rob. The name *Gentiana peruviana* (Griseb.) Gilg 1896 was based on *G. limoselloides* [var.] β *peruviana* Griseb. both as to basionym and as to plants described, but by typification was a superfluous combination. It likewise is illegitimate. There was no obstacle to the use of the epithet *peruviana* in *Gentianella* by Fabris (1958), but, as he recognized, the priority of the epithet *peruviana* at the rank of species, as applied to any of the *Gentianella* taxa discussed here, dates only from its use in this legitimate combination in 1958. The epithets *hieronymi*, *boliviana*, and *lobelioides* have priority at the rank of species in this context dating from their publication in

[1]Contribution No. 117 from the Royal Botanical Gardens, Hamilton, Ontario, Canada.

legitimate combinations in 1896, 1909, and 1916, respectively. Therefore, if the four taxa recognized by Gilg in 1916 are treated as conspecific, the correct name for the species thus circumscribed is *Gentianella hieronymi* (Gilg) Fabris. The name *Gentianella peruviana* (Griseb.) Fabris is correct only when the species to which it is applied is more narrowly defined, as it was by Fabris.

Within *G. peruviana*, Ho and Liu (1993) recognized two varieties: var. *peruviana*, in which they included *G. hieronymi* of Gilg (1916); and var. *boliviana* (Pax) T.N. Ho, which was equivalent to *Gentiana boliviana* plus *G. lobelioides* of Gilg (1916). Having studied nomenclaturally significant material of both taxa, I have chosen to recognize *G. boliviana* as a species rather than to consider it conspecific with *Gentianella hieronymi*.

Gentianella boliviana (Pax) J.S. Pringle, comb. nov. BASIONYM: *Gentiana boliviana* Pax, Repert. Spec. Nov. Regni Veg. 7: 243. 1909. *Gentianella peruviana* (Griseb.) Fabris var. *boliviana* (Pax) T.N. Ho, Bull. Nat. Hist. Mus. London, Bot. 23:64. 1993. TYPE: BOLIVIA. LA PAZ: Chacaltaya, 30 km from La Paz, 4800 m, *Buchtien 1482* (HOLOTYPE: B, destroyed; ISOTYPE: US, microfiche MO!).

Gentianella boliviana was further represented in my studies by *Beck 7477* and *8022* (HAM, [LPB]), *Menhofer X-2312* (HAM, [LPB]), *Solomon 5066* (MO), *Solomon & Moraes R. 13462* (MO), and *Ruthsatz 1057* and *1105* (both HAM). (Brackets indicate replicates not seen by me.) All of these specimens were collected near the type locality in Depto. La Paz.

Gentianella hieronymi is native to Provs. Jujuy and Salta, Argentina. The type collection is *Hieronymus & Lorentz 15* (HOLOTYPE: B, destroyed, photo F!; ISOTYPES: CORD, K!). It and *G. boliviana* are well separated geographically.

Gentianella boliviana and *G. hieronymi* differ as indicated in the following descriptions:

Gentianella boliviana (Pax) J.S. Pringle. Herbaceous perennial, 1–4 cm (including peduncles and flowers). Flowering stems usually only 1 or 2, occasionally to 6, decumbent, unbranched. Leaves all basal or cauline leaves 1 pair, all leaves narrowly obovate to linear-oblanceolate, 4–10(–16) × 1–4 mm, rounded or obtuse. Flowers solitary; peduncles 1–3 cm. Calyx 5–8 mm, lobed 0.45–0.55× its length, lobes narrowly obovate to oblong, rounded to obtuse or occasionally subacute. Corolla light blue with darker veins, widely campanulate, 10–16 mm, lobed 0.54–0.65× its length, lobes oblong-obovate, rounded at apex.

Gentianella hieronymi (Gilg) Fabris. Herbaceous perennial (?), 2–7 cm (including peduncles and flowers). Flowering stems usually 5–12, decumbent, unbranched. Basal leaves narrowly obovate to oblanceolate, 8–12 × 2–4 mm, obtuse; cauline leaves usually none, occasionally or 1 or 2 pairs, elliptic to linear, 6–10 × 1–2 mm, obtuse. Flowers solitary; peduncles 1–4 cm. Calyx 8–14 mm, lobed 0.45–0.65× its length, lobes oblong, rounded at apex. Corolla pale lilac, campanulate, 18–25 mm, lobed 0.52–0.60× its length, lobes elliptic-obovate, subacute.

Among the several low-growing, solitary-flowered species of *Gentianella* native to Depto. La Paz, *G. boliviana* is especially distinctive. The plants of this species are generally smaller than those of any other *Gentianella* species in La Paz. Its distinctive features include calyx lobes about as long as the tube, usually rounded at the apex, and corollas 10–16 mm long, with widely spreading lobes slightly longer than the tube, widely rounded at the apex ("obtusissimus" in the original description). The corollas of both of the specimens at MO were described as "pale blue" and those of *Beck 8022* as "verde-azul pálida." In herbarium specimens, this color, when well preserved, is reminiscent of that of *Amsonia tabernaemontana* Walter of North America, and is an instant guide to the recognition of *G. boliviana*. In the other solitary-flowered *Gentianella* species in Depto. La Paz the corollas are predominantly white, in most cases marked with dark blue-violet.

Gentianella hieronymi, which is not native to Bolivia, differs most conspicuously from *G. boliviana* in its larger, more floriferous plants; more narrowly campanulate calyces; larger, pale lilac, less widely opening corollas; and proportionately narrower corolla lobes that are subacute at the apex.

Many low-growing species of *Gentianella* with solitary- or few-flowered stems are present in Argentina, Bolivia and Peru, and not all of the taxonomic questions pertaining to these species can be resolved within a single paper. *Gentiana lobelioides*, now called *Gentianella lobelioides* (Gilg) Zarucchi, is known only from the type specimen, *Weberbauer 955* (holotype B, destroyed, photo F!), from Depto. Puno, Peru, directly across the border from Depto. La Paz, Bolivia. From my study of published descriptions and a photograph of the type its inclusion within *G. boliviana* seems reasonable. Notably, the corollas were described as "pallide-coerulei" (Gilg 1916), and those of the type specimen appear to have been ca. 11 mm long. However, since the type was in poor condition when photographed and I have encountered no specimens from Peru referable to *G. lobelioides*, its disposition is not within the scope of this paper. With *G. boliviana* (and probably *G. lobelioides*) excluded, populations referable, respectively, to *G. hieronymi* s. str. in Argentina and *G. peruviana* s. str. in Depto. Cuzco, Peru, are widely separated. These species were considered distinct by Fabris (1958), who emphasized differences in the proportionate lengths of the calyx lobes and tube as well as in corolla size. From descriptions (Gilg 1916; Fabris 1953, 1958) and photographs of the type specimens their recognition as separate species seems tenable, but since I have not seen specimens referable to *G. peruviana* s. str., further discussion of that species is not included here.

GENTIANELLA INAEQUICALYX

Ho and Liu (1993) included five species recognized by Gilg (1916) within their circumscription of *Gentianella silenoides* (Gilg) Fabris. They treated this species as comprising three varieties: var. *silenoides*, equivalent only to *Gentiana*

silenoides of Gilg (1916); var. *striaticalyx* (Gilg) T.N. Ho, within which they included *Gentiana striaticalyx* Gilg, *G. anthosphaera* Gilg, and *G. herzogii* Gilg; and var. *inaequicalyx* (Gilg) T.N. Ho, based on *Gentiana inaequicalyx* Gilg. The epithets *silenoides* and *inaequicalyx* both have priority at species rank dating from 1896, the other epithets from 1906 or 1916. Ho and Liu indicated that they had seen no specimens relevant to the typification of the epithets *silenoides*, *striaticalyx*, and *herzogii*, and cited no specimens that would exemplify their concepts of these taxa. They had seen isotypes of the names *Gentiana anthosphaera* and *G. inaequicalyx*.

I have examined photographs of the type specimens of all five of these epithets, as well as isotypes, paratypes, and more recent specimens from sites near the respective type localities that corresponded closely to the respective type specimens. My studies have in part supported Ho and Liu's revision, but have also indicated that some modifications would be appropriate. Specifically, *Gentianella silenoides* s. str. and the taxon treated here as *G. inaequicalyx* are distinctly dissimilar and conform well to standards for the recognition of species in South American *Gentianella*.

Gentianella inaequicalyx (Gilg) Fabris ex J.S. Pringle, comb. nov. BASIONYM: *Gentiana inaequicalyx* Gilg, Bot. Jahrb. Syst. 22:324. 1896. *Gentianella silenoides* (Gilg) Fabris var. *inaequicalyx* (Gilg) T.N. Ho, Bull. Nat. Hist. Mus. London, Bot. 23:64. 1993. TYPE: BOLIVIA. LA PAZ: Vicinis Sorata, 2650–3000 m, *Mandon 365* (LECTOTYPE, here designated, G, photos F!, NY!; ISOTYPES: GH!, K!, NY!, S, US!). PARATYPES: BOLIVIA. COCHABAMBA: Vic. Cochabamba, *Bang 1143* (GH!, K!, NY!); Cochabamba: Tunari, 3000–4000 m, *Kuntze s.n.* (probably B, destroyed).

Gentianella inaequicalyx was further represented in my studies by *Luteyn & Dorr 13799* (HAM, [LPB, NY]), from Depto. La Paz, Bolivia, and *Vargas C. & Cruz G. 4980* (HAM, [NY, USZ]), from Depto. Santa Cruz, Bolivia. Existing data indicate that the range of *G. inaequicalyx* is more northern than that of any of the other entities included in *G. silenoides* s. lat. by Ho and Liu.

The type of the name *G. silenoides* is *Lorentz & Hieronymus 877* (holotype B, destroyed, photo F!), from Depto. Tarija, Bolivia. This species was further represented in my studies by *Bastián 1183* and *1312* (HAM, [LPB]), *Ehrich 199* (HAM, [LPB]), and *Solomon 10197* and *10262* (HAM, [MO]), all from Depto. Tarija, Bolivia. It has also been reported from the adjacent Prov. Salta, Argentina (Fabris 1953).

Gentianella inaequicalyx and *G. silenoides* differ as indicated in the following descriptions:

Gentianella inaequicalyx (Gilg) Fabris ex J.S. Pringle. Herbaceous annual, 6–25 cm. Primary stem usually solitary, erect or curved only at base; branches all ± strongly ascending. Basal and proximal cauline leaves mostly oblanceolate to elliptic, 8–20 × 1–4 mm, obtuse, often absent at flowering time; distal leaves

gradually narrower, lanceolate to linear, 5–30 × 1–5 mm, acute. Inflorescence a dense cyme; flowers sessile or pedicels up to 1 cm. Calyx 6–15 mm, lobed 0.50–0.75× its length, lobes often distinctly unequal, linear, subacute. Corolla white with blue-violet tinge or blue-violet throughout, tubular-campanulate, opening narrowly, 11–22 mm, lobed 0.35–0.45× its length, lobes oblong-ovate, obtuse or abruptly short-acuminate.

Gentianella silenoides (Gilg) Fabris. Herbaceous annual, 8–30 cm. Primary stem usually solitary, erect or ± decumbent; branches widely spreading to ascending. Basal and proximal cauline leaves mostly elliptic, 8–20 × 1–4 mm, obtuse to acute, sometimes absent at flowering time; distal leaves gradually narrower, lanceolate to linear, 7–30 × 1–4 mm, acute. Inflorescence a diffuse cyme; pedicels 1–10 cm. Calyx 9–15 mm, lobed 0.55–0.95× its length, lobes usually subequal, narrowly linear, acute to acuminate. Corolla white to pale blue-violet, narrowly campanulate, opening ± widely, 15–26 mm, lobed 0.45–0.55× its length, lobes elliptic-ovate, acute to acuminate.

Plants of *G. inaequicalyx* are stiffly erect, with dense, many-flowered inflorescences in which the flowers are sessile or on pedicels less than 1 cm long. Its aspect, consequently, is similar to that of the North American *G. quinquefolia* (L.) Small. Its corollas are more narrowly tubular than those of *G. silenoides*, and are proportionately less deeply lobed. *Gentianella silenoides* differs in its diffuse inflorescence with widely separated flowers on pedicels 1–10 cm long, conforming to Gilg's (1916, in the key) description, "Flores in cymas laxas dispositi." Its aspect is consequently similar to that of another Bolivian species, *G. lythroides* (Gilg) Fabris ex T.N. Ho & S.W. Liu, which differs in its more deeply lobed corollas.

The other reductions to synonymy or varietal status within *G. silenoides* by Ho and Liu have been supported by my studies, in particular the reduction of *G. herzogii*. *Solomon 10262*, which, having corollas 28–36 mm long, would be identifiable as *G. herzogii*, and *Solomon 10197*, with corollas 15–18 mm long, in the size range given by Gilg (1916) for *G. silenoides*, were collected at the same locality in Depto. Tarija. They exhibit only modest differences in the size of the plants and in the size of the leaves, peduncles, and flowers, rather than any qualitative differences. The distinction between var. *silenoides* and var. *striaticalyx* (including plants recognized by Gilg both as *Gentiana striaticalyx* and as *G. anthosphaera*), is so slight that even varietal status might be questioned.

Further studies of taxa in this complex would be desirable. *Gentianella pallidolilacina* (Gilg) T.N. Ho & S.W. Liu was accepted as a distinct species by Ho and Liu (1993), but studies of additional material might indicate that it should be included within *G. inaequicalyx*. If these taxa were to be united (exclusive of *G. silenoides*) the epithet *inaequicalyx* would have priority.

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